DOCUMENT RESUME

ED 420 445 PS 026 645

AUTHOR	Schmitt-Rodermund, Eva; Vondracek, Fred W.
TITLE	Breadth of Interests, Exploration, and Identity Development in Adolescence.
PUB DATE	1998-02-00
NOTE	33p.; Paper presented at the Biennial Meeting of the Society for Research on Adolescence (7th, San Diego, CA, February 26-March 1, 1998).
PUB TYPE	Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	*Adolescent Development; Adolescents; Child Rearing; *Discovery Processes; Foreign Countries; *Identification (Psychology); Parent Child Relationship; Parenting Skills; Predictor Variables; *Student Interests
IDENTIFIERS	Exploratory Studies; Germany; *Identity Formation; Identity Status; Student Engagement

ABSTRACT

Exploration is known to be a precursor of identity achievement and, thus, to a healthy transition to adulthood. This study examined antecedents of exploratory behavior in adolescence and the role of such behavior in identity development. Participants were 933 respondents in a 1991 national survey of German youth, ranging in age from 13 to 19 and with an average age of 14.9 years. Exploration was assessed using adolescents' reports of current activities and likes in leisure, school, technology, movies, and music, with a composite score indicating the breadth of activities. The breadth of childhood activities was assessed retrospectively using 12 activities indicating an active and creative use of time, creative games, cultural activities, and technical games. Also assessed were the adolescents' goal-directedness, perception of parenting style, parental modeling during childhood, and their identity beliefs. The results indicated that, consistent with Marcia's (1980) theory of identity status, identity achievers and adolescents in moratorium reported the most exploration, while adolescents in identity diffusion explored least. Retrospective childhood data revealed that breadth of childhood interests, as indicated by active engagement in technical and cultural activities, were the strongest predictors of exploration in adolescence. Parenting behavior, primarily joint activities with children, predicted adolescent exploration only when childhood breadth of activities was not included in the analyses at the same time. Parental behavior, however, had a strong and direct impact on childhood breadth of interests. Thus, childhood breadth of activities was a true mediator of the relationship between parenting behavior and adolescent exploration. (Contains 55 references.) (KB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 420 445

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Breadth of Interests, Exploration, and Identity Development in Adolescence

Eva Schmitt-Rodermund

University of Jena

Germany

Fred W. Vondracek

The Pennsylvania State University

USA

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

E. Schmitt-Rodermund

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

PS 026645

Abstract

Exploration is known to be a precursor of identity achievement and, thus, to a healthy transition to adulthood. The present study examined antecedents of exploratory behavior in adolescence and the role of exploration in identity development. Consistent with theory (e.g., Marcia, 1980), identity achievers and adolescents in moratorium reported most exploration, while adolescents in identity diffusion explored least. Retrospective childhood data revealed that breadth of childhood interests, as indicated by active engagement in technical and cultural activities, were the strongest predictors of exploration in adolescence. Parenting behavior, most of all joint activities with children, predicted adolescent exploration only when childhood breadth of activities was not included in the analyses at the same time. Parental behavior, however, had a strong and direct impact on childhood breadth of interests (activities). Thus, childhood breadth of activities was a true mediator of the relationship between parenting behavior and adolescent exploration.

Breadth of Interests, Exploration, and Identity Development in Adolescence

To determine what kind of a person one is and what one will be like as an adult is one of the most important developmental tasks during adolescence. Erik H. Erikson saw the successful search for identity during the second decade of life as an important precursor of a healthy future and of satisfying intimate relationships during later life (Erikson, 1959; 1968). Identity may be viewed as "the red thread" in peoples' lives, and its establishment is considered as "one of the corner stones in ego development" (Erikson, 1982; Patterson, Sochting & Marcia, 1992, p. 9). One of the most important tasks related to identity formation during adolescence is the choosing of an occupation (Raskin, 1985; Savickas, 1985; Blustein, Devenies, & Kidney, 1989; Vondracek, 1992).

There are different routes adolescents may pursue in determining their occupational future. One is to do what others tell them to do, or to just follow in their parents' footsteps. The other is to first explore the various possibilities in order to find out which occupation would be the best match related to one's own characteristics, gifts, or hopes for the future. In Marcia's (1980) identity status framework the various routes to the selection of a self-chosen identity (including an occupational identity) are defined by four identity statuses. The four statuses were named identity diffusion (i.e., one has not yet explored and also has not decided on an occupation); identity foreclosure (i.e. one has decided without exploration, often simply following family tradition); identity moratorium (i.e., one is in the middle of exploration without having made up one's mind yet); and finally, identity achievement (i.e., one has made a commitment to a specific decision after careful exploration).

Studies carried out to examine the four statuses have shown that the picture is not as clear as it was thought to be. Not everybody goes through the four statuses in an orderly way, starting identity diffused and ending up to be identity achieved. There are lots of different patterns of

identity development (Waterman, 1982; 1985). The largest variety of patterns is found during late adolescence (Adams & Jones, 1983; Archer, 1982). Thus, when adolescents in moratorium status were studied again four years later, about 90% of them were in another identity status (Waterman, Geary, & Waterman, 1974). This finding makes sense, but there is also much change among those who may be considered identity achieved or those with a foreclosed identity (Waterman & Goldman, 1976; Adams & Fitch, 1982). These changes may be due to life's storms which may blow a person from identity achievement back into moratorium. The loss of a close relative or unemployment may force a person to re-evaluate decisions once made (Waterman & Archer, 1990). Thus, occupational decisions, and with them occupational identity, often have to be revisited throughout the lifespan (Phillips, 1982), although adolescence is the most important phase in life for these processes to take place.

In his writings about identity development, Erikson (1959; 1968) postulated the existence of two key processes in identity formation: Exploration and commitment. Although everyone probably engages in some exploration prior to making a commitment, studies have shown that there is considerable variation in the extent individuals explore (Jordaan, 1963; Jordaan & Hyde, 1979; Stumpf, Colarelli & Hartman, 1983; Grotevant, 1987; Blustein, 1992). The observation of differences in individuals' exploratory behaviors (particularly during the identity formation years of late adolescence and early adulthood) has raised interest in studying the antecedents of such behaviors in children. For example, Blustein (1989) and Grotevant (1987) showed that exploration is facilitated by internal control beliefs, which are known to emerge in children whose parents are themselves open and internally oriented and who treat their children in a warm, supportive way (Schneewind, 1995). Thus, from a social learning perspective, these parents may well serve as good role models, who themselves engage in openness and exploration and who promote and reinforce exploration in their children. Seen from this angle, it is not surprising that

a modest but stable relationship between family variables and exploratory behavior has been found (Schulenberg, Vondracek, & Crouter, 1984).

Applying the life-career rainbow perspective (Super, 1980), a number of researchers have studied the impact of the family on exploratory behavior. In the theory of attachment brought forward by Bowlby and others (Bowlby, 1982; Ainsworth, 1989), exploration is seen as emerging in the context of safe family bonds. With this idea in mind, Grotevant and Cooper (1986, 1988) as well as Blustein, Prezioso and Schultheiss (1995) found a strong attachment to one's parents to be an important facilitator of exploratory activities. Separation from parents, however, seems to also play a role in career development, although results have not been as clear as for attachment (Blustein, Walbridge, Friedlander & Palladino, 1991; O'Brien, 1996; Lucas, 1997). Kracke (1997) has shown that authoritative parenting is related to exploratory behavior. Putting the previously mentioned findings together with those of Kracke, her view might be a promising one, as she confirms both factors, a warm and close relationship between adolescents and their parents, and freedom for decision making and initiative-taking as important precursors of exploratory behavior.

Previous findings point to a complex set of antecedents for exploratory behavior during adolescence. Warm, supportive parenting behavior as well as inherited personality characteristics may be responsible for a curious, internally controlled, goal-directed child. The probability for such a child to engage in a broad range of exploratory activities, which in turn generate reinforcement, is quite high. What, however, is a child likely to explore? Although it is not impossible, it certainly seems unlikely that early exploratory behaviors in children represent efforts to explore possible future careers. We prefer the view that exploratory behaviors in children serve the development of interests. More exploration is likely to lead to greater breadth and variety of interests. The development of a wide range of interests in childhood is likely to be

reflected in greater breadth of interests in adolescence, just as childhood habits of exploration are likely to carry over into adolescence. Interests and activities during adolescence, in turn, are related to vocational preferences in later life (Naylor, 1993; Hong, Milgram & Whiston, 1993).

The view that interests and exploration are interrelated is one with a long tradition. Herbart, an influential philosopher and educator born in 1776 in Germany (and educated at the university of Jena) saw interests as developing out of knowledge and assumed that childhood experiences, through education and exploration are likely to put down the roots for such a development (Herbart, 1982). Interestingly, elucidation of the precise relationship between breadth of interests and exploration has not received much attention from theoreticians or researchers. The antecedents of exploratory behaviors, however, are generally the same as those postulated for the development of interests. For example, Krumboltz's social learning perspective identified the existence of behavioral models and application of reinforcement as the most important precursors of exploration. He suggested that exploration is not intrinsically motivated but needs some encouragement from outside of the person (Krumboltz & Schroeder, 1965; Krumboltz & Thorensen, 1964). In a similar vein, Lofquist and Dawis (1969; 1991) attribute the origin of interests to both learned preferences for engaging in activities that individuals consider themselves to be „good at", and the reinforcement value of current stimulus conditions. From the perspective of others, however, there is evidence that exploration is much more an intrinsically motivated process (Blustein, 1988). Self-efficacy, for instance, was shown to have an effect on career exploration. Individuals who were confident in their own abilities tended to engage in more career exploration (Grotevant, 1987; Blustein, 1989; Ellis & Taylor, 1983).

This conceptualization of exploration is similar to conceptualizations of interest formation put forth by Hackett and Betz (1981) and by Lent, Brown, and Hackett (1994). They propose that adolescents develop perceptions of self-efficacy based on their history of observational

learning, as well as engagement in a variety of activities in which they receive reinforcement from others. Interests are then formed in activities in which they see themselves as efficacious and in which they expect to experience success.

Goal-directedness, a thinking-oriented decision-making style, and higher levels of stress in the process of career development have also been shown to be related to more extensive exploration of occupational possibilities (Blustein, 1989, Blustein & Phillips, 1988). Again, this corresponds to views about the development of interests. Specifically, Strong (1955) proposed that goals precede interests, and that, while abilities determine the range of available means (to reach the goal), interests serve to identify which means are most appropriate in terms of liked/disliked activities.

Taken together, the different concepts, from Herbart's ideas to more recent views, not only indicate a close relationship between interests and exploration but also provide clues regarding the nature of their relationship. It is likely that exploratory activities in a wide range of areas are the prerequisites to the development of more specific interests. In view of the apparently close conceptual linkage between the development of interests on the one hand, and exploratory behaviors on the other, we selected three different types of variables to study the antecedents of exploration in adolescence . The most direct predictor for exploratory activities during adolescence was expected to be exploration during childhood. That is why we included the frequency of three different childhood activities to predict exploration in adolescence, namely cultural activities such as reading or visiting a theater, phantasy games, such as drawing or playing role games, and technical activities, such as building technical devices or conducting physical experiments. Higher levels of childhood activities in these areas were expected to be related to more exploratory behavior in adolescence.

Furthermore, in line with previous research by Blustein (1988; 1989), variables tapping

motivational aspects were included. Unfortunately, we did not have any data on self esteem or internal/external orientation, but we did have some information related to goal-directedness. Four different areas of goal directedness were expected to be related to exploratory behavior, namely adolescents' achievement orientation, their orientation to reach goals in the far future instead of just being interested in having fun presently, their orientation towards accomplishing developmental tasks versus being hedonistic and not interested in hard work, and finally, adolescents' concern with the future in general. We expected all four areas of goal-directedness to be related to exploratory behavior during adolescence.

The last group of antecedents consisted of parental behaviors. Consistent with previous research (Kracke, 1997; Grotevant & Cooper, 1986), certain parental behaviors were expected to facilitate the degree of exploration during adolescence. Six different variables were included, four of which characterize different aspects of the parent-child relationship. Parents' support of adolescent problem solving, communication between parents and adolescents, parents' aspirations for their children, and their interest in school issues were seen as characteristics of an authoritative parenting style, and thus were expected to enhance adolescents' exploration through broad and varied activities. The other two predictors describe the quality of the home of the adolescent and, thus, the kind of models for exploratory behavior that the parents represent (Krumboltz & Schroeder, 1965; Krumboltz & Thoerensen, 1964). Specifically, the richness of the home environment in terms of books and other cultural goods, and joint activities with parents were expected to be related to adolescents' exploratory activities.

The following hypotheses were specified:

1. Adolescents' degree of exploration is related to their identity status. Identity achievers and adolescents in moratorium are expected to explore more than youth in identity diffusion or foreclosure.

2. Antecedents of exploratory behavior are expected to be found in three different areas, which relate to exploration to a different degree. The best predictor of exploratory behaviors during adolescence is exploration during childhood, followed by the motivational factor of goal-directedness. Parenting and the home environment are expected to relate only moderately to exploration during adolescence. The interaction between parents and adolescents and the quality of the home environment are likely to affect motivational orientations as well as childhood activities and thus they may be connected to exploratory behaviors in adolescence as mediator variables.

Methods

Participants

All participants (N=933) were respondents in a national survey of German youth (Jugendwerk der Deutschen Shell, 1992). They attended school in the 10th grade or below, so that adolescents from all school tracks were included in the study (in Germany, two of the three different school tracks terminate with the tenth grade). Average age was 14.9 years, ranging from 13 to 19. Data was gathered in 1991, when German unification had just occurred a year before, thus allowing us to include adolescents from East Germany (N = 325) as well as from West Germany (N = 608). As processes underlying identity formation were not considered to be different for adolescents from East and West Germany, analyses were carried out using the entire sample. To control for region of origin, however, a dummy variable with '1' indicating West German origin and '2' East German origin was included into each of the analyses.

Procedure

The assessment materials were developed by a consortium of research groups from several German universities for the national survey Shell Youth '92 (Jugendwerk der Deutschen Shell, 1992). Trained professional interviewers from a reputable commercial survey institute used

profiles, based on the stratification variables, to identify 4-8 adolescents each, suitable for inclusion in the study. All of the data were then collected in face-to-face interviews, with the adolescents and their parents in their homes.

Measures

Table 1 shows mean values and standard deviations of all variables used in the analyses, including some control variables. Intercorrelations of all variables are also shown in Table 1. All items selected for this study were constructed for the purpose of the youth survey of 1991 (Jugendwerk der Deutschen Shell, 1992).

Exploration. Following the various theorists, interests are seen as expression of specific activities, hobbies, and commitments. But before interests can be named, a person engages in a wider range of different activities, that is, explores his or her likes and dislikes. Exploration was assessed using adolescents' reports of activities and likes in five different areas, namely leisure, school, technology, movies, and music. A composite score was designed in order to indicate the breadth of the adolescents' activities. Except for the area of school, where adolescents could name as many favorite subjects as they liked (the choice, however, was restricted, as there is only a limited number of subjects taught in school), all adolescents were prompted with the same number of activity areas. They responded on a four point scale indicating how often they engaged in the specific activity (4 = very often, 3 = often, 2 = sometimes, 1=never). In the area of leisure time activities, adolescents were asked regarding 35 different activities, ranging from all kinds of creative activities to partying with friends or participating in sports. Furthermore, they were asked which kinds of music they listened to (16 different kinds of music were prompted, ranging from classical to heavy metal), and what kinds of movies they watched (8 different kinds of movies and programs were listed, ranging from crime stories to historical documentaries). Technical interests were assessed in 15 different technical domains, ranging

from bikes to alternative sources of energy. Here, adolescents just responded by indicating whether or not they were interested in the respective issue. School interests were assessed by asking adolescents to name their favorite subjects (8 subjects were named at the most).

A composite score of interests was generated by counting the number of different areas the adolescents engaged in very often and often, or, for school and technical interests, the number of areas adolescents had reported to be interested in. The maximum value which could be achieved (with a maximum of 8 school interests) was 82, minimum value could have been zero. In fact, scores ranged from 8 to 52, with a mean of 29.4 and a standard deviation of 6.86. The five different areas all correlated significantly. The internal consistency, however, was only alpha = .44. Considering the fact that the five areas covered different contexts ranging from school to leisure, and touched very different activities, this alpha seems acceptable. In addition, the aim of the composite exploration measure was clearly to measure breadth of activities, and breadth does not necessarily imply breadth in all given topics.

Table 1

Breadth of Childhood Activities. Breadth of childhood activities was assessed using twelve different activities indicating an active and creative use of time. The twelve activities were grouped into three areas, namely creative games (e.g., role playing, drawing, alpha = .60), cultural activities (e.g., visiting a museum, reading a book; alpha = .71), and technical games (e.g., building, experimenting; alpha = .84). Adolescents were asked retrospectively, how often they had engaged in these activities when they were children (ages 3 to 12; 4 = very often, 1 = never). Average scores were computed, separately for the three areas of childhood activities.

Goal-Directedness. Several questions concerned adolescents' directedness to reach goals in

life. Three of them were single item indicators. Adolescents were given two cards and asked to choose the statement which best matched their present orientation. One pair was related to delay of gratification: "I live my life to reach goals in the future, even if I cannot see an effect right away because it takes some time to reach them," versus "Things I do should be fun or useful right away." The other question tapped hedonism: "I do not want to put much effort in things. I just live once, and that's why I think that most of all I should have fun," versus "For me, life is a task which I try to put all my effort in. I want to achieve something in life, even though this is hard sometimes." The third indicator of goal directedness was a question about adolescents' achievement orientation. On a five-point scale, they were asked to rate their aspirations, i.e., how ambitious they considered themselves to be (5 = very achievement oriented).

Finally, goal directedness was measured inversely by using a four-item scale. Adolescents reported on how much they were oriented toward the present rather than the future (e.g., What I will do next week I think about when it is next week). Answers were rated on a four-point scale ranging from 4 = true, to 1 = not true at all. The internal consistency was alpha = .69. The average of the four items served as a measure for present orientation.

Parenting style. Adolescents were asked about how they perceived their parents in several respects. First, communication between the adolescent and his or her parents was assessed using two items for each parent, e.g., "Do you tell your mother/father about your whereabouts after school?" Ratings ranged from 1 = always, to 4 = never. The internal consistency of the four items was alpha = .75. If there were no reports on one of the parents, the average ratings for the other parent served as a measure. Otherwise, the average value of the four items was taken. Secondly, parents' help and support during the last twelve months was assessed using three items. Adolescents were asked whether their parents had helped them with personal problems, gave them advice with important decisions, or helped them choosing something new to do. Ratings

were made on a four-point scale ranging from 4 = they do that very often to 1 = they never do that. The internal consistency was alpha = .70.

Adolescents reported on parental interest in school issues during elementary school, through age 12. A four-point scale was used for the four items (4 = true, to 1 = not true at all), e.g. "my parents helped me with my homework." Internal consistency was alpha = .65. Another four items (also aimed at the time between six and twelve years of age) measured parental aspirations (e.g., "my parents had high hopes concerning my future"). Internal consistency was alpha = .74. For both, parental school interests and parental aspirations, an average score was computed.

Parental modeling. This measure could also be considered to assess the social capital available in the family during elementary school (from age 6) until the age of 12. It consisted of two different indicators. One was a three item measure of adolescents' perception of the home environment, e.g., "I read books we had at home". Answers were given on a four-point scale from 4 = true, to 1 = not true. The internal consistency of the three items was alpha = .51. The three items were combined into an average score.

Adolescents also gave reports on joint activities with their parents during that six year period (from 6 to 12). Four items were used, e.g., "In my family, we make music together." Adolescents rated the items on a four-point scale ranging from 4 = true to 1 = not true. The internal consistency for the four questions was alpha = .63. An average score served as the measure.

Identity beliefs. Adolescents chose from four alternative descriptions of their present identity status. The statements were: "I am currently not sure about what I want to do with my life, I simply let things happen" (indicating a relative lack of both exploration and commitment, i.e., identity diffusion); "I know pretty well what I want to do with my life, because I usually follow well-established paths" (indicating a relative lack of exploration but substantial commitment, i.e., identity foreclosure); "I am currently not sure about what I want to do with my life, but I am

investing much time and effort to find out" (indicating substantial exploration but a relative lack of commitment, i.e., identity moratorium); "I know pretty well what I want to do with my life, because I have spent a great deal of time and effort thinking about it" (indicating substantial exploration and commitment, i.e., identity achievement). The four levels of identity development measured in this way are clearly meant to correspond to the four identity statuses first operationalized by Marcia (1966), but at the same time, it should be apparent that they are not being presented as a measurement scale. Previous research with this procedure has, nevertheless, demonstrated adequate validity. In a study of 16 year-old adolescents, it was found that those who reported having made an initial vocational choice already, were more advanced in their identity development than those who had not (Silbereisen, Vondracek & Berg, 1997).

Results

The relationship between adolescent exploration and identity status

Using analysis of variance, exploratory activity of the adolescents was compared for the four identity status groups (diffusion, moratorium, foreclosure, achievement). Other factors were region of origin (1 = West, 2 = East Germany), sex of the adolescent (1 = male, 2 = female), and whether or not adolescents already knew which future occupation they wanted to choose (0 = do not know yet, 1 = have an idea). This last factor was included to show the practical relevance of our exploration variable for career decisions. Age served as a covariate. Table 2 shows the results. Only main effects were significant in the analysis, namely, identity status, sex, and occupational choice. Identity achievers named most areas of interest (32.8), followed by adolescents in moratorium (29.2) and those with a foreclosed identity (30.1). Least exploration was reported by adolescents in the status of identity diffusion (28.3). An aposteriori-comparison utilizing a Scheffé-Test ($p < .05$) revealed significant differences between those who were identity achieved and all other groups, and between identity diffused and foreclosed adolescents.

Boys reported more exploration (30.2) compared to girls (28.8), and those who already had made up their mind regarding a future occupation had engaged in exploratory activities more (30.3) than those who did not yet know what they wanted to do (28.1). The covariate was relevant, too. An older age predicted more exploratory activity ($r = .11$, $p < .001$). Thus, hypothesis 1 was confirmed.

Table 2

Antecedents of exploratory behavior

In order to investigate this hypothesis, a number of regression analyses were performed. The predictor variables were entered blockwise to study the contribution of the different antecedents to exploration. Table 3 shows the results of these analyses. In Model 1, only the control variables were entered in the analysis. These included region of origin, gender and age of the adolescent, school track (1 = lowest, 'Hauptschule'; 3 = highest, 'Gymnasium'), and father's education (1 = up to 10 years of schooling, 2 =more than 10 years of schooling). Model 2 included the control variables and parenting behavior. That is, six more variables were added to the analysis, namely, communication between parents and adolescent, parents' help and support, parental school involvement, parents' aspirations, the richness of the home environment, and finally, joint activities of parents and adolescents. For Model 3, the four variables of goal directedness were added and entered together with the variables on parents' behavior. The newly entered variables included delay of gratification, hedonistic orientation, achievement orientation of the adolescent, and orientation to the present. Model 4 shows the contribution of all variables entered at the same time. In addition to parenting behaviors and goal directedness, breadth of childhood interests (three different groups of childhood games-- fantasy, technical, cultural) were

entered in the analysis. Table 3 reveals the beta weights and b-values for all four models.

Table 3

As can be seen, older adolescents and boys revealed a broader range of interests. Moreover, none of the control variables were relevant for exploration. Sex proved not to be relevant anymore, once childhood breadth of interests was included in the analyses. As can be seen later, there was a strong relationship between gender and these activities. Parental behaviors were only relevant, however, if childhood breadth of interests was not included in the analyses. Model 2 shows a rich home environment and many joint activities of adolescents and parents being significant predictors for exploratory behavior in adolescence. Parents' help with problems just failed to be significant. Here, too, a strong relationship between parental behaviors and childhood breadth of interests accounted for the disappearance of the effects. In the case of goal-directedness, just one of the four variables related to the degree of exploration, and that was adolescent achievement orientation. Those adolescents who reported a strong interest in accomplishing goals in their lives also reported more exploratory activities than adolescents who were not achievement oriented. This effect did not change when childhood breadth of activities was entered into the regression. All three indicators of childhood breadth of interests were highly significant predictors of exploration in adolescence, indicating that those boys and girls who were interested in creative or knowledge enhancing activities during childhood were also among those who had a larger range of exploratory activities during adolescence.

Thus far, the second hypothesis was only partially confirmed. Some of the variables were not relevant for exploration, especially in the area of goal-directedness. Aspects of parenting related to exploration were only found among those two variables which described the social capital of

the family, i.e., what the family environment offered in terms of activities and facilities. The quality of the interaction was less important. However, correlations between the two areas of parenting behavior were high (see Table 1). Consequently, an additional analysis, parallel to Model 2, with only the four parent-adolescent interaction variables as predictors in addition to the control variables, showed both parental help and parental aspirations to be relevant for exploration.

Taken together, the results indicated that breadth of childhood activities, but not goal-directedness, may be a true mediator variable between parenting and exploratory activities in adolescence. To examine this view, three additional regression analyses were computed. This time, the three different indicators of childhood breadth of activities were the criterion variables. Predictors were the control variables, the four indicators of goal-directedness, and the six indicators of parenting behavior. Results are shown in Table 4.

Table 4

Cultural activities were predicted by parental help, joint activities with parents, a rich home environment, and parental school interest. Other than the first three variables, parents' school interest was negatively related to cultural activities, indicating that a strong involvement of parents in their child's homework and in other school related issues was counterproductive for many cultural activities of the child. The frequency of phantasy games was only predicted by joint activities of parents and adolescents. Technical games were related to parents' help and support, joint activities, parent-adolescent communication, and parental school interests. The last two variables were negatively related to technical games, indicating that strong communication between parents and adolescents and much parental school interest would hinder involvement in

technical games.

For all three childhood activities that were used to assess exploration in childhood, there were strong effects of gender and region of origin. Boys engaged more in technical activities and girls more in cultural and creative activities. Adolescents from Eastern Germany reported more cultural and technical and less phantasy activities during childhood. This may well be related to the educational system under Communist rule, which emphasized culture and technology and did not promote creative activities as much as was the case in the West.

Overall, parenting strongly affected childhood activities, which in turn related to exploration during adolescence. There was no direct path of parenting behaviors to exploratory activities in adolescence when breadth of childhood activities was included in the analysis. This indicates a mediating effect of childhood activities for parenting behavior, most of all through joint activities of parents and adolescents.

Discussion

The present study had two major objectives. The first was to shed light on the relationship of exploration to identity formation, and the second was to examine the antecedents of adolescent exploratory behaviors. Results showed that exploratory activities were, indeed, related to identity status (Marcia, 1980). Identity achievers reported a broad range of interests and exploratory activities. Adolescents in identity diffusion had only few interests and did not engage in extensive exploratory activities. Adolescents in moratorium and those with a foreclosed identity fell between these extremes. Boys and girls in moratorium are still in the process of finding and exploring new areas, whereas the foreclosed adolescents may pursue some interests and exploratory activities following other peoples' suggestions. This, however, entails exploration as well. Being sent to the tennis court by one's mother makes it easier to discover that one really does not like tennis and would rather do something else.

Furthermore, the level of exploration was related to occupational choice. Independently of their age, adolescents who had already made up their minds about what occupation they wanted to pursue in the future had explored more than those who did not yet have an idea of what to do. These differences are consistent with Marcia's views of identity development, as well as with empirical findings on commitment and exploration in adolescence (Marcia, 1980; Waterman, 1985; Bosma, 1992).

The second aim of the present study was to find antecedents of exploratory behavior. Previous research had shown three main antecedents, namely, parental modeling and reinforcement (Krumboltz and colleagues, 1964, 1965), an authoritative parenting style including both separation and attachment (Blustein, 1997; Kracke, 1997; Grotevant & Cooper, 1986, 1988), and a goal-directed, internally controlled personality (Blustein, 1989). With our data, which was collected as part of a national survey in 1991, we had the chance to include indicators of all three areas into the study (Jugendwerk der Deutschen Shell, 1992). Childhood activities as an indicator of childhood exploration were added because they were seen as precursors of adolescent exploration.

Results indicated support for all three views. The strongest predictors for adolescent exploration were creative, technical, and cultural childhood activities, indicating that adolescents who as children had broad interests, that is, they engaged in a broad range of activities, had more interests and pursued more activities in their second decade of life as well. In addition, goal-directedness was relevant for adolescent exploration. Adolescents who were very achievement oriented and had high goals for the future reported a broader range of interests and more activities than those who were not very ambitious.

Parental role modeling was assessed indirectly through parents' and adolescents' joint activities and the cultural facilities available in the home. Both facets of parental behavior

proved to be relevant for adolescent exploration, but there was no direct path to exploration from parental modeling; the relationship appeared to be mediated through childhood breadth of interests. Joint activities with parents was shown to be the motor behind the development of breadth in childhood interests, which in turn predicted more exploration during adolescence.

Before these results are further discussed, some caveats of the study need to be mentioned. First of all, the present study is cross-sectional. This means that, even though it may seem as if there is a causal chain leading to exploration during adolescence, this may not be the case. A longitudinal study would help to clarify this issue. Secondly, all data came from one source, which could be problematic, especially with regard to the retrospective data on parenting and childhood activities. However, research in the area of parenting has shown that adolescents' perception of their family has a more powerful impact on their development than the objectively measured family situation (Schneewind & Ruppert, 1997). Finally, the variables chosen may not have been measured in ways familiar to most researchers. As we had to draw on an existing data set, measurement choices that were less than optimal from our perspective, had already been made. In view of the fact that many of our findings replicated those of earlier studies, the selection and measurement of our variables seems to have been quite reasonable.

There are two findings in this study which are particularly interesting and require some further discussion. The first is that goal-directedness, as we measured it, did not have an impact on exploration except via the achievement orientation of the adolescents. Why was that? Achievement orientation was the only one among the four indicators of goal directedness that was related to an internal orientation or self-efficacy. These two motivational characteristics are known to be strongly related to exploratory behavior (Blustein, 1989; Luzzo, James, & Luna, 1996). Furthermore, Blustein found strong initiating activities, low levels of confusion, and the presence of orienting goals to be related to exploration. The three areas other than achievement

orientation that we considered to be indicators of goal-directedness, however, were very much oriented toward the views adolescents have concerning time. Obviously, reporting that one is living very much in the present and not interested in the future is not necessarily indicative of having no goals or lacking self-confidence. More likely, it is a statement that is rather typical of adolescents and may even be strongly related to the extent to which the adolescents' answers include social desirability.

The second result that requires some explanation is that parenting behaviors are not related to exploration in a direct way but only through the interests reported from childhood. One has to keep in mind, though, that parenting was also assessed retrospectively, and that today's parenting behaviors could relate to exploration. However, parenting has been shown to be very stable even over a period of 16 years, and retrospective data about one's treatment during childhood tend to be relatively precise (Schneewind & Ruppert, 1997). Thus, it is more than likely that parenting behaviors did not change a great deal. In this light, the question of why parents' behaviors relate to activities in childhood but not in adolescence is an interesting one.

The answer might be found in the fundamentally different relationships children and adolescents have with their parents. The most important difference is probably the greater freedom adolescents have to decide what to do, while children's activities are very much guided by their parents. Scarr and McCartney (1983) have pointed out that adolescence is the time when an active (rather than a passive or evocative) phenotype-environment interaction accounts for much of the variation in interests and behavior. Adolescents actively choose what they want to do while children are given something to do on the basis of their own or their parents' phenotypes. The influence of parents on their children's activities is known to decline as the children get older (Steinberg & Silverberg, 1986; Youniss & Smollar, 1985). Altogether, it is not surprising that parents' influence on their children's interests and activities levels off as the

children get older.

Our results indicate that the roots of exploratory behaviors are put down in children rather than in adolescents. Parents seem to play an important role here. Their behavioral modeling, as well as their activities together with their children, teach about how one can spend time and how one can find out about one's likes and dislikes. This way of parenting very often is accompanied by a warm, and at the same time directive, parenting style that contributes to an atmosphere of receptiveness and openness to many interests.

Longitudinal research is needed to show whether there is such a causal relationship between parenting and the development of childhood interests which, in turn, influences adolescent exploration. We do know that exploration is one of the most important precursors of a good person-environment fit in the choice of an occupation (Holland, 1985; Blustein, 1992). Considering that most people spend the majority of their life working, and that satisfaction with work is very much related to health and a sense of well-being (Mainquist & Eichorn, 1989), one can hardly value exploration too high. If the behaviors of parents and other role models is so important in triggering curiosity and exploratory activity in children and adolescents, it may be worthwhile to think about intervention programs that could help parents and teachers to foster such behaviors from a very early age on.

References

Ainsworth, M. (1989). Attachment beyond infancy. American Psychologist, 44, 709-716.

Adams, G. R. & Fitch, S. A. (1982). Ego stage and identity status development: A cross-sequential analysis. Journal of Personality and Social Psychology, 43, 574-583.

Adams, G. R. & Jones, R. (1983). Female adolescents' identity development: Age comparisons and perceived child-rearing experience. Developmental Psychology, 19, 249-256.

Archer, S. L. (1982). The lower age boundaries of identity development. Child Development, 53, 1551-1556.

Blustein, D. L. (1988). The relationship between motivational processes and career exploration. Journal of Vocational Behavior, 32, 345-357.

Blustein, D. L. (1989). The role of goal instability and career self-efficacy in the career exploration process. Journal of Vocational Behavior, 35, 194-203.

Blustein, D. L. (1992). Applying current theory and research in career exploration to practice. The Career Development Quarterly, 41, 174-184.

Blustein, D. L., Devenies, L. E. & Kidney, B. A. (1989). Relationship between the identity formation process and career development. Journal of Counseling Psychology, 36, 196-202.

Blustein, D. L. & Phillips, S. D. (1988). Individual and contextual factors in career exploration. Journal of Vocational Behavior, 31, 45-62.

Blustein, D. L., Prezioso, M. S. & Schultheiss, D. P. (1995). Attachment theory and career development: Current status and future directions. The Counseling Psychologist, 23, 416-432.

Blustein, D. L., Walbridge, M. M., Friedlander, M. & Palladino, D. (1991). Contributions of psychological separation and parental attachment to the career development process.

Journal of Counseling Psychology, 38, 39-50.

Bosma, H. A. (1992). Identity in adolescence: Managing commitments. In G. R. Adams, T. P. Gulotta, & R. Montemayor (Eds.), Adolescent identity formation (pp. 91-121). Newbury Park: Sage.

Bowlby, J. (1982). Attachment and loss. Vol. 1: Attachment. New York: Basic Books.

Erikson, E. H. (1959). Identity and the life cycle. Psychological Issues, 1, 18-164.

Erikson, E. H. (1968). Identity: Youth and crisis. New York: Norton.

Erikson, E. H. (1982). The life cycle completed: A review. New York: Norton.

Grotevant, H. D. (1987). Toward a process model of identity formation. Journal of Adolescent Research, 2, 203-222.

Grotevant, H. D. & Cooper, C. R. (1986). Exploration as a predictor of congruence in adolescent's career choices. Journal of Vocational Behavior, 29, 201-215.

Grotevant, H. D. & Cooper, C. R. (1988). The role of family experience in career exploration: A life-span perspective. In P. B. Baltes, D. L. Featherman, & R. M. Lerner (Eds.), Life-span development and behavior (pp. 231-258). Hillsdale: Erlbaum.

Hackett, G., & Betz, N. E. (1981). A self-efficacy approach to the career development of women. Journal of Vocational Behavior, 18, 326-339.

Herbart, J. F. (1982). Paedagogische Schriften [Writings in Pedagogy]. Stuttgart: Klett Cotta.

Holland, J. L. (1985). Making vocational choices. A theory on vocational personalities and work environments. Englewood Cliffs, N.J.: Prentice-Hall.

Hong, E., Milgram, R. M., & Whiston, S. C. (1993). Leisure activities in adolescents as a predictor of occupational choice in young adults: A longitudinal study. Journal of Career Development, 19, 221-229.

Jordaan, J. P. (1963). Exploratory behavior: The formation of self and occupational concepts. In

D. E. Super (E.), Career development: Self-concept theory (pp. 42-78). New York: College Entrance Examination Board

Jordaan, J. P. & Heyde, M. B. (1979). Vocational maturity during the high school years. New York: Teachers College Press.

Jugendwerk der Deutschen Shell (Hg.) (1992). Jugend '92 [Youth '92] (Bd. 1-4). Opladen: Leske & Budrich.

Kracke, B. (1997). Parental behaviors and adolescents' career exploration. The Career Development Quarterly, 45, 341-350.

Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social-cognitive theory of career and academic interest, choice, and performance. Journal of Vocational Behavior, 45, 79-122.

Lofquist, L. H., & Dawis, R. V. (1969). Adjustment to work: A psychological view of man's problems in a work-oriented society. New York: Appleton-Century-Crofts.

Lofquist, L. H., & Dawis, R. V. (1991). Essentials of person-environment correspondence counseling. Minneapolis: University of Minnesota Press.

Lucas, , M. (1997). Identity development, career development, and psychological separation from parents: Similarities and differences between men and women. Journal of Counseling Psychology, 44, 123-132.

Mainquist, S., & Eichorn, D. (1989). Competence in work settings. In D. Stern & D. Eichorn, (Eds.), Adolescence and work: Influences of social structure, labor markets, and culture (pp. 327-367). Hillsdale, NJ: Erlbaum.

Marcia, J. E. (1980). Identity in adolescence. In J. Adelson, (Ed.), Handbook of adolescent psychology (pp. 159-187). New York: Wiley.

Naylor, F. D. (1993). The generality of interest themes. Australian Psychologist, 28, 1-7.

O'Brien, K. M. (1996). The influence of psychological separation and parental attachment on the career development of adolescent women. Journal of Vocational Behavior, 48, 257-274.

Patterson, S. J., Sochting, I. & Marcia, J. E. (1992). The inner space and beyond: Women and identity. In G. R. Adams, T. P. Gulotta, & R. Montemayor (Eds.), Adolescent identity formation (pp. 9-24). Newbury Park: Sage.

Phillips, S. D. (1982). Career exploration in adulthood. Journal of Vocational Behavior, 20, 129-140.

Raskin, P. M. (1985). Identity and vocational development. In A. S. Waterman (Ed.), Identity in adolescence: Process and concepts (pp. 25-42). San Francisco: Jossey-Bass.

Savickas, M. L. (1985). Identity in vocational development. Journal of Vocational Behavior, 27, 329-337.

Scarr, S. & McCartney, K. (1983). How people make their own environments: A theory of genotype environment effects. Child Development, 54, 424-435.

Schneewind, K. (1995). The influence of family processes on control beliefs. In A. Bandura (Ed.), Self-efficacy in changing societies (pp. 114-148). Cambridge: University Press.

Schneewind, K. & Ruppert, S. (1997). Personality and family development: An intergenerational longitudinal comparison. Mahwah, NJ: Erlbaum.

Schulenberg, J. E., Vondracek, F. W. & Crouter, A. C. (1984). The influence of the family on vocational development. Journal of Marriage and the Family, 10, 129-143.

Silbereisen, R. K., Vondracek, F. W. & Berg, L. A. (1997). Differential timing of initial voctional choice: The influence of early childhood family relocation and parental support behaviors in two cultures. Journal of Vocational Behavior, 50, 41-59.

Strong, E. K. Jr. (1955). Vocational interests 18 years after college. Minneapolis: University of Minnesota Press.

Stumpf, S. A., Colarelli, S. M. & Hartman, K. (1983). Development of the Career Exploration Survey (CES). Journal of Vocational Behavior, 22, 191-226.

Steinberg, L. & Silverberg, S. (1986). The vicissitudes of autonomy in early adolescence. Child Development, 57, 841-851.

Super, D. E. (1980). A life-span, life-space approach to career development. Journal of Vocational Behavior, 16, 282-298.

Vondracek, F. W. (1992). The construct of identity and its use in career theory and research. The Career Development Quarterly, 41, 130-144.

Waterman, A. S. (1982). Identity development from adolescence to adulthood: An extension of theory and a review of research. Developmental Psychology, 18, 341-358.

Waterman, A. S. (1985). Identity in the context of adolescent psychology. In A. S. Waterman (Ed.), Identity in adolescence: Process and concepts (pp. 5-24). San Francisco: Jossey-Bass.

Waterman, A. S. & Archer, S. L. (1990). A life-span perspective on identity prevention: Development in form and process. In P. B. Baltes, D. L. Featherman, R. M. Lerner (Hrsg.), Life-span development and behavior. Hillsdale, NJ: Lawrence Erlbaum.

Waterman, A. S. & Goldman, J. A. (1976). A longitudinal study of ego identity status at a liberal arts college. Journal of Youth and Adolescence, 5, 361-369.

Waterman, A. S., Geary, P. S., & Waterman, C. K. (1974). A longitudinal study of changes in ego identity status from the freshman to the senior year at college. Developmental Psychology, 10, 387-392.

Youniss, J. & Smollar, J. (1985). Adolescent relations with mothers, fathers, and friends. Chicago: University of Chicago Press.

Table 1. Intercorrelations, Means and Standardeviations of the Variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Exploration	---													
2. Phantasy games	**.19**	---												
3. Technical games	**.26**	**-.11**	---											
4. Cultural activities	**.27**	**.25**	.07	---										
5. Delay gratification	.02	-.01	.04	.08	---									
6. Hedonism	**-.10**	-.03	-.03	**-.12**	**-.23**	---								
7. Achievement orient.	**.16**	.02	.06	**.15**	**.10**	**-.17**	---							
8. Presence orientation	-.01	-.02	.05	-.05	**-.18**	**.17**	**-.13**	---						
9. Communic. parents	.05	**.11**	**-.16**	**.12**	.01	-.07	.09	-.03	---					
10. Help parents	**.12**	**.10**	.04	**.16**	.05	-.06	.04	-.04	**.41**	---				
11. School int. parents	.07	.06	.01	.06	.05	-.09	.07	-.05	**.16**	**.31**	---			
12. Achiev. or. parents	**.11**	.07	.08	**.12**	.06	-.08	**.24**	-.03	**.14**	**.26**	**.49**	---		
13. Home environment	**.16**	**.13**	.03	**.29**	.04	-.06	.05	.00	**.18**	**.25**	**.20**	**.20**	---	
14. Joint activities	**.24**	**.24**	.09	**.33**	.06	-.08	**.11**	-.04	**.26**	**.31**	**.19**	**.25**	**.31**	---
Means	29.4	2.37	1.62	1.94	1.58	1.47	3.55	2.63	3.09	2.78	2.99	2.53	2.70	1.90
Standard Deviations	6.9	.70	.77	.51	.49	.50	.92	.63	.70	.71	.55	.58	.63	.63

Note. Bold coefficients indicate significances $p < .05$.

Table 2. Results of an Analysis of Variance: Exploration and Identity Status, Sex, Region of Origin, and Choice of an Occupation.

		F	Sig. of F.
Covariate			
	Age	14.75	***
Main Effects			
	Sex (A)	9.05	***
	Region (B)	.10	
	Identity Stage (C)	7.86	***
	Occupational choice (D)	15.29	***
2-way interactions			
	A x B	.02	
	A x C	2.44	
	A x D	.86	
	B x C	1.74	
	B x D	2.78	+
	C x D	.90	
3-way interactions			
	A x B x C	2.07	
	A x B x D	1.30	
	A x C x D	.27	
	B x C x D	.12	
4-way interaction			
	A x B x C x D	2.49	+

Note. *** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .1$

Table 3. Antecedents of Exploratory Behavior: Regression Analyses.

	Model 1		Model 2		Model 3		Model 4	
	b	beta	b	beta	b	beta	b	beta
Region of origin	-.09	-.00	.06	.00	.05	.00	-.43	-.03
Education father	.67	.04	.12	.01	.07	.00	-.24	-.01
Sex (female)	**-1.35**	**-.10**	**-1.36**	**-.10**	**-1.33**	**-.10**	-.58	-.04
Age	**.63**	**.13**	**.67**	**.14**	**.66**	**.13**	**.60**	**.12**
Schooltrack	.42	.04	.22	.02	.18	.02	.07	.01
School int. parents			.15	.01	.20	.02	.42	.03
Communication			-.32	-.03	-.41	-.04	-.08	-.01
Parental help			.69	.07	.72	.07	.38	.04
Par. achiev. orientation			.23	.02	-.07	-.01	-.18	-.01
Joint activities			**1.75**	**.16**	**1.72**	**.16**	.74	.07
Home environment			**1.09**	**.10**	**1.05**	**.10**	.61	.06
Presence orientation					.01	.00	-.11	-.01
Hedonism					-.67	-.05	-.56	-.04
Delay of gratification					-.27	-.02	-.29	-.02
Achievement orientation					**.73**	**.10**	**.60**	**.08**
Cultural activities							**1.87**	**.14**
Phantasy games							**1.56**	**.16**
Technical games							**2.17**	**.25**
R	.18	***	.31	***	.32	***	.45	***
R^2	.03		.09		.10		.20	

Note. Bold coefficients indicate significances $p < .05$.

Table 4. Antecedents of Childhood Activities: Regression Analyses

	Cultural		Phantasy		Technical	
	b	beta	b	beta	b	beta
Region of origin	**.17**	**.16**	**-.21**	**-.15**	**.21**	**.13**
Edu. Father	.04	.03	.08	.05	.06	.03
Sex (female)	**.10**	**.10**	**.59**	**.42**	**-.84**	**-.54**
Age	.00	.01	.01	.03	.00	.01
Schooltrack	.04	.06	.01	.01	-.01	-.01
School int. parents	**-.07**	**-.07**	.05	.04	**-.09**	**-.06**
Communication	.01	.02	-.02	-.02	**-.15**	**-.14**
Par. help	**.06**	**.08**	.00	.00	**.09**	**.08**
Par. achiev. or.	.03	.04	.01	.01	.07	.05
Joint activities	**.19**	**.23**	**.23**	**.20**	**.12**	**.09**
Home environment	**.15**	**.19**	.04	.03	.05	.04
R	.44	***	.50	***	.59	***
R^2	.19		.25		.36	

Note. Bold coefficients indicate significances $p < .05$.